

Serial Number **09/147,398**

line 21, insert –specific substructures made up of– before "additional"; delete "sub- or".

REMARKS

Reconsideration of the application is respectfully requested for the following reasons:

1. Formalities

The specification and abstract have been revised to place the application in proper U.S. format, including deletion of the references to the claims that were objected to in item 3 on page 2 of the Official Action.

Because the changes are all clearly formal in nature, except as noted below in connection with the objection under 37 CFR §1.83(a), it is respectfully submitted that the changes do not involve new matter.

2. Objection to Drawings Under 37 CFR §1.83(a)

This objection has been addressed as follows:

a. Claims 15 and 32 – Laser Beam

New Fig. 12 has been added to show a laser beam in support of claims 15 and 32, and corresponding descriptions have been added to pages 3 and 5 of the specification.

New Fig. 12 is identical to original Fig. 4 except that the rotating chisel 14 has been replaced by the laser beam referred to in claims 15 and 32. The laser beam is described in the first complete paragraph on page 4 of the original specification, which indicates that the engraving tool may either be a laser beam or a mechanical chisel, and therefore new Fig. 12 and the corresponding additions to pages 3 and 5 of the original specification **do not represent new matter**.

b. Claim 19 – Simultaneous Engraving of Multiple Plates

Since claim 19 has been canceled, the step of several plates being engraved simultaneously is no longer recited in the claims, and therefore the objection under 37 CFR §1.83(a) is moot with respect to this feature.

c. Claim 20 – Engraving of One Plate by Several Tools

New Fig. 13 has been added to show simultaneous engraving of one plate by multiple engraving tools, and pages 3 and 5 of the specification have been amended to briefly mention engraving of one plate by multiple engraving tools **without adding new matter.**

3. Rejection of Claims 1-35 Under 35 USC §112, 2nd Paragraph

This rejection has been addressed as follows:

- a. The phrase "in particular a steel intaglio printing plate" has been deleted from claim 1, and instead included in new independent claim 36. On the other hand, claim 23 has been amended to recite "an embossing or intaglio printing plate."

Contrary to the Examiner's suggestion that a "steel intaglio printing plate" is not an "embossing plate," Applicant respectfully notes that the original specification consistently refers to a steel intaglio printing plate as a type of embossing plate, or uses the terms interchangeably, and that in the context of the invention the original usage of the terms "embossing plate" and "steel intaglio printing plate" is correct.

The reason why a steel intaglio printing plate may be referred to as an embossing plate in the context of the invention is that embossing is an inherent part of the gravure printing process in which the steel intaglio printing plate is used. When the steel intaglio printing plate is used for gravure printing, where the color carrying areas of the printing plate are constituted by depressions in the printing

plate surface and the printing process is carried out with extremely high pressure, the substrate (*e.g.*, paper) to which the ink is transferred will become permanently deformed as the substrate is pressed into the ink-carrying depressions of the printing plate, *i.e.*, the substrate will become embossed. In fact, it is even possible to use a steel intaglio printing plate without any ink, *i.e.*, as plate that is intended solely for embossing purposes without transfer of ink.

- b. Each of the claims has been reviewed and revised as necessary to correct the various antecedence errors.
- c. Regarding claims 23-35, page 9 of the specification has been amended to clarify that the "defined roughness structures" or the "additional information" constitute "substructures," and that the "microstructure lines 30" are a type of "additional information" which is a specific one of the types of "substructures."
- d. Claims 29 and 35 have been amended by respectively deleting "or the like" and "and the like."
- e. Claims 34 and 35 have been re-written in proper form, with a positively recited method step in each claim.
- f. Claim 34 has been re-written to clarify that the plate is not use to produce other plates, but rather as an original for production of additional such plates, *i.e.*, as a master plate for the production of slaves or clones (which are then used for the actual printing step).

4. Rejection of Claims 23-35 Under 35 USC §102(b) in view of U.S. Patent No. 2,210,923 (Jacquerod) or Under 35 USC §103(a) in view of the Jacquerod Patent and U.S. Patent No. 4,972,323 (Cauwet)

These rejections are respectfully traversed on the grounds that:

- a. the so-called substructures of Jacquerod are random patterns of dimples which result from the etching process, rather than lines having a specific, non-random, meandering or partially straight shape that are engraved into linearly engraved depressions, *i.e.*, depressions engraved "in the form of a line," as formerly recited in claims 26 and 27, and now positively recited in claim 24; and

8 never said substructure =
line, even in
26, 27

- b. the Cauwet patent does not include any specific teachings concerning engraving meandering or partially straight substructures in a linearly engraved depression, and therefore could not have motivated the ordinary artisan to modify the teachings of Jacquerod to obtain the claimed invention, particular since Cauwet is not concerned with the manufacture of printing or embossing plates of the type disclosed by Jacquerod, but rather with the engraving of small ornamental or utility objects.

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The claimed substructure arrangement, in which meandering or partially straight lines are engraved into linearly engraved structures, lends itself to numerical control of plate formation, and is clearly distinguishable from the random substructure arrangement of Jacquerod. Moreover, the Cauwet patent includes no suggestion, either implied or express, that would have led one of ordinary skill in the art to modify the Jacquerod patent to include such structures.

The Examiner is reminded of the following oft-quoted passage from *In re Fritch*, 23 USPQ2d 1780,1783 (Fed. Cir. 1992), which points out that:

*'Obviousness cannot be established by combining the teachings of the prior art to produce the claimed invention, absent some teaching or suggestion supporting the combination. Under section 103, teachings of references can be combined only if there is some suggestion or incentive to do so [quoting ACS Hosp. Systems, Inc. v. Montefiore Hosp., 221 USPQ 929,933 (Fed. Cir. 1984)].' Although couched in terms of combining teachings found in the prior art, the same inquiry must be carried out in the context of a purported obvious 'modification' of the prior art. **The mere fact that the prior art may be modified in the manner suggested by the Examiner does not make the modification obvious unless the prior art suggested the desirability of the modification.***

never said
Because Jacquerod does not teach the claimed inclusion of engraved meandering or partially linear substructures in engraved depressions that are "in the form of a line," Jacquerod does not anticipate the claimed invention, and since Cauwet does not include any teachings that would have motivated the ordinary artisan to modify the plates of Jacquerod to include such

meandering or partially linear substructures, it is respectfully submitted that the rejections of claims 23-35 under 35 USC §§102(b) and 103(a) are improper and should be withdrawn.

5. Rejection of Claims 1-3, 5-11, 14, and 16-20 Under 35 USC §103(a) in view of U.S. Patent No. 4,949,270 (Shima)

This rejection is respectfully traversed on the grounds that the method of Shima does not include the step of calculating a tool path by determining the outer contour and the desired depth of an area to be engraved, as claimed, so that the area enclosed by the outer contour can be engraved automatically and without specifically determining coordinates for the tool path.

not claimed
According to the Examiner, this feature is suggested by Fig. 13 of Shima. However, while Fig. 13 of Shima and the accompanying description suggest that it is known in the prior art to remove a predetermined area by moving the engraving tool along adjacent paths, there is no disclosure to suggest removing an area to a desired depth and calculating the tool path merely on the basis of a predetermined contour of the area and a desired depth.

According to the disclosure of Shima, the outer contour of a depression to be formed in a workpiece is shown on a screen together with the diameter of the tool. The tool path is calculated by a computer program with the starting and end points, *i.e.*, their coordinates, which are manually predetermined or set. The program connects these predetermined points by straight or curved portions and separate portions are calculated for the tool and added one after another to form the entire tool path. Thus, for example, in the example illustrated in Fig. 13(c) of Shima, if the loop path of Shima is closed, the next path must be carried out a predetermined step towards the center of the area, with no freedom to form meandering or partially straight lines extending into the original path, resulting in a method that essentially performs iterative adjustment of the tool path rather than relying a single reference to the predetermined contour of the area and the desired depth.

The reason why the method of Shima is not concerned with micro-engraving of fine, meandering or partially straight, structures into previously formed grooves is that the Shima patent actually concerns so-called "pocket machining" for hollowing out the interior of the profile of a workpiece rather than engraving of printing or embossing plates. There is thus no need for micro-engraving in the system of Shima, much less a teaching thereof.

Because Shima does not teach or even suggest the claimed inclusion of engraved meandering or partially linear substructures in engraved depressions that are "in the form of a line," it is respectfully submitted that the rejection of claims 1-3, 5-11, 14, and 16-20 under 35 USC §102(b) is improper and should be withdrawn.

Shima not used to provide this Shima tool path determining

6. Rejection of Claims 4, 12, 13, and 15 Under 35 USC §103(a) in view of U.S. Patent Nos. 4,949,270 (Shima) and 4,972,323 (Cauwet)

This rejection is respectfully traversed on the grounds that the Cauwet patent, like the Shima patent, fails to disclose or suggest the step of calculating a tool path by determining the outer contour and the desired depth of an area to be engraved, as claimed, so that the area enclosed by the outer contour can be engraved automatically and without specifically determining coordinates for the tool path. Instead, Cauwet specifically teaches renewal of engraving depth control signals "with each path," in a manner that appears to be similar to that of Shima but that is contrary to the method of the present invention.

also, Shima retains much tool

Because Cauwet does not include any teachings that would have motivated the ordinary artisan to rely on the outer contour and desired depth when implementing a method of the type disclosed in Shima, it is respectfully submitted that the rejection of claims 4, 12, 13, and 15 under 35 USC §103(a) is improper and should be withdrawn.

7. Rejection of Claims 21 and 22 Under 35 USC §103(a) in view of U.S. Patent No. 4,949,270 (Shima), 4,972,323 (Cauwet), and 2,210,923 (Jacquero)

This rejection is respectfully traversed on the grounds that the Jacquero patent, like the Cauwet and Shima patents, fails to disclose or suggest the claimed step of calculating a tool path

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by determining the outer contour and the desired depth of an area to be engraved, which has the advantage that the area enclosed by the outer contour can be engraved automatically and without specifically determining coordinates for the tool path, and further on the grounds that the ordinary artisan would not have thought to combine a printing or embossing plate engraving method of the type disclosed by Jacqueros with the workpiece forming method of Shima, and the decorative article engraving method of Cauwet.

Because neither Cauwet nor Jacqueros includes any teachings that would have motivated the ordinary artisan to rely on the outer contour and desired depth when implementing a method of the type disclosed in Shima, it is respectfully submitted that the rejection of claims 4, 12, 13, and 15 under 35 USC §103(a) is improper and should be withdrawn.

Having thus overcome each of the rejections made in the Official Action, withdrawal of the rejections and expedited passage of the application to issue is requested.

Respectfully submitted,

BACON & THOMAS, PLLC



By: BENJAMIN E. URCIA
Registration No. 33,805

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BACON & THOMAS, PLLC
625 Slaters Lane, 4th Floor
Alexandria, Virginia 22314

Telephone: (703) 683-0500

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